

GREENVILLE COUNTY

Stormwater Management Program



Storm Water System Permitting Background

In the middle portions of the 20th century, our nation saw dramatic decreases in the quality of our surface waters due to a lack of wastewater treatment and polluted storm water runoff. Cities grew at an alarming pace, bringing unprecedented urbanization and the expansion and construction of local industries. Municipal and industrial wastewaters were pumped into the waterways used for drinking, fishing, and recreation. The pollution threatened fish and wildlife, decreased aesthetic value, and was viewed as a serious threat to public health. Raw municipal and industrial wastewater was the most obvious culprit, and in the 1960s, the nation experimented with different methods of wastewater treatment. In an effort to manage the growing problem, Congress passed landmark legislation in 1972 that is now known as the Clean Water Act.



The Clean Water Act was created to control water pollution, and it produced results as the nation experienced substantial increases in water quality. However, the increased quality of our surface waters was not as dramatic as expected, and in the late 1970s and early 1980s, it became increasingly evident that there were other sources contributing to water quality degradation. Storm water runoff or non-point source (NPS) pollution was identified as a likely source of the harmful constituents. Various NPS studies were conducted in the 1980s with alarming results—approximately 80 percent of the pollution in our receiving waters was from storm water runoff! In response, Congress passed the Federal Water Quality Act directed solely at NPS pollution.

The Federal Water Quality Act created a two-phase permitting program for industry,

construction, and municipalities. Phase I of the program was adopted in November 1990. Under this legislation, 11 categories of industry, construction activities disturbing more than five acres, and municipal separate storm sewer systems (MS4s) serving populations greater than 100,000 people are required to comply with National Pollutant Discharge Elimination System (NPDES) permits. In South Carolina, Greenville and Richland Counties meet the criteria for permit coverage.

History of Greenville County Storm Water Permit

As required, Greenville County submitted its NPDES permit application to the South Carolina Department of Health and Environmental Control (SCDHEC) in May 1994. In addition to developing a comprehensive storm water management plan (SWMP), the County identified a stable funding source to sustain the program. In anticipation of the permit being issued in 1994, Greenville County developed and implemented a storm water utility to fund the permit activities. When SCDHEC failed to issue the permit, Greenville County abolished the utility and rebated the collected money. Knowing the permit would eventually be issued, the County prepared to fund the first two years with accumulated budget reserves and recreate the stable funding mechanism when necessary.

Greenville County finally received a response to its application in May 1998. The County entered negotiations with SCDHEC that lasted until March 2000 when a permit was issued. Despite the negotiations, SCDHEC issued a permit that exceeded federal requirements and would have cost nearly \$40 million to implement over the five-year term of the permit. In response, the County filed an appeal staying the permit until the terms and conditions could be revised to the County's satisfaction. By August 1, 2000, a revised permit was issued, resulting in an estimated implementation cost reduced to between \$12 million and \$15 million over the first five-year period.

Where Greenville County is Now

Legal Authority Development

The County's application stated that "the existing laws and regulations of the County of Greenville will require substantial modifications and additions in order to implement the stormwater management program." Greenville County had five existing ordinances that provided some authority required by the permit; however, some inconsistencies and deficiencies remained. Certain provisions of these ordinances were outdated and needed updating. The County proceeded to consolidate and update these ordinances into a comprehensive storm water ordinance.



The County invited a diverse stakeholder group made up of the regulated community; environmental groups; citizens; local, state, and federal government representatives; and representatives of the business community (including agriculture) to attend monthly meetings to discuss and develop a consensus on the legal authority modifications. As a result of the groups' efforts, the County council passed the new comprehensive ordinance in the fall of 2001. The new ordinance demonstrated the County's ability to carry out a SWMP that included the following components:

- Controlling the contribution of pollutants to the MS4
- Prohibiting illicit discharges into the MS4
- Controlling other discharges into the MS4 (such as spills)
- Requiring permits for land disturbances of 5,000 square feet and greater
- Controlling post-construction runoff

Watershed Prioritization

As part of the SWMP five-year implementation plan, the County outlined and scheduled its watershed basins for quality control master planning. A plan was developed to identify water quality problems and areas of concern as progress is made. The objective of this program element is to ensure that water quality issues are taken into account as County watersheds are studied and evaluated for flood control projects and development.

All of Greenville County has been divided into subhydrologic units based on watersheds of similar size. The resulting map serves as a management tool for future work dealing with surface water quality and quantity issues over the life of this permit and beyond. A prioritized ranking of watersheds has been prepared based on the following items:

- Impaired water bodies for which total maximum daily loads (TMDLs) have been established
- Waters identified on various Environmental Protection Agency (EPA) water quality lists [303(d), 304, 305(b), 314(a), 319(a), etc.]
- Water bodies showing known signs of impairment with no TMDLs
- Waters draining urbanized areas
- Drinking water supply sources
- Highly sensitive waters
- Watersheds containing Resource Conservation and Recovery Act (RCRA) sites
- Watersheds containing NPDES-permitted facilities and municipalities

GIS Data Management

Greenville County hosts a website that manages the geographic information system (GIS) data related to all aspects of the storm water system inventory. Information such as outfall and detention basin location attributes collected by field crews are posted on the website at <http://maps.woolpert.com/greenville>.

Storm Water Utility Development

The County assessed potential funding mechanisms to provide the resources needed to meet storm water management requirements. County reserves, property tax millage, federal and state funds, and

user fees were considered based on the following criteria:

- Ease of understanding
- Technical equitability
- Perception of ratepayers as being equitable
- Capability of generating sufficient revenue

After taking these issues into account, it was determined that a user fee in the form of a storm water utility was the obvious choice. Since numerous studies have determined that there is a direct correlation between impervious area such as pavement and rooftops, the Greenville County Storm Water Utility fee is based on the runoff from impervious areas associated with the user's property. As structured, the utility should provide a stable funding source for the County's SWMP that is proportional to a user's contribution to the storm water system.



Illicit Tracking and System Inventory

Field crews continue to collect storm sewer infrastructure features and identify and track illicit discharges with global positioning system (GPS) equipment as illicit discharges are identified.

Outfall Inventory and Field Screening

Greenville County is approximately 800 square miles in area with over 2,500 miles of streams and rivers. The requirement for finding illegal non-storm water discharges dictates that the County has an inventory of all the storm water system discharges to the mapped waters of the state. Field crews have collected the location and condition attributes of more than 17,000 discharge points in the County.

Field crews take samples from outfalls that have base flow during continuous dry weather conditions, and they test those samples for pollutant levels. Pollutant levels exceeding the allowable range are

recorded and investigated to determine and eliminate the source of the pollutant discharge.

Permit Tracking System

A land disturbance permit tracking system was developed for the County in the second year. The County is currently in the process of switching servers to an SQL server that will allow greater data gathering and maintenance flexibility. Ongoing training and support focused on implementation of the NPDES permit is offered.

Wet Weather Sampling

As a result of a pilot monitoring program conducted during the second permit year, five in-stream monitoring points were identified as wet weather sampling points. These points were chosen to represent the different land uses occurring in the County. For each of these points, samples of storm water discharge is collected from three storm events, occurring at least one month apart, in accordance with permit requirements.

Flow-weighted samples collected from the storm events at each location were analyzed at a certified lab to test all the samples for a comprehensive list of possible pollutants. Pollutant-loading estimates have been calculated for all major outfalls in the County's system based on the results of the sample data.





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